

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An adhesive sheet for a semiconductor connecting flexible substrate comprising a laminate having an adhesive layer on a flexible substrate, wherein said adhesive layer contains a thermoplastic resin (A) and an epoxy resin containing glycidyl groups (B), and said epoxy resin (B) contains at least one epoxy resin (B) selected from the following (I), (II), and (III) as an essential component:

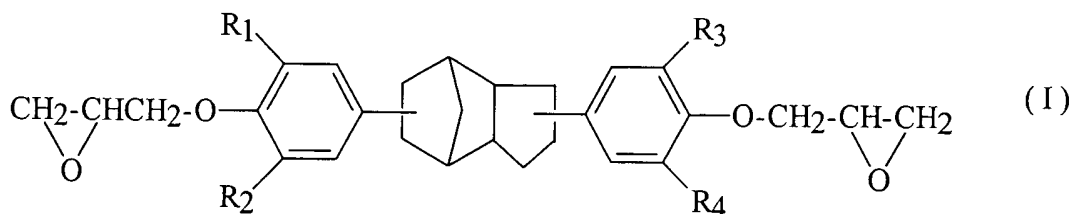
(I) ~~Dicyclopentadiene~~ dicyclopentadiene skeleton-containing epoxy resins,

(II) ~~Terpene~~ terpene skeleton-containing epoxy resins, and

(III) ~~Biphenyl~~ biphenyl skeleton-containing epoxy resins,

wherein the flexible substrate comprises a flexible insulating film made of a polyimide, polyester, polyphenylene sulfide, polyether ether ketone, aramid, polycarbonate or polyarylate.

2. (Previously Presented) An adhesive sheet for a semiconductor connecting substrate according to claim 1, wherein the dicyclopentadiene skeleton-containing epoxy resins (b1) are represented by the following general formula (I):



wherein  $R_1$  to  $R_4$  stand for a hydrogen atom, lower alkyl group with 1 to 4 carbon atoms or halogen atom.

3.-4. Cancelled

5. (Previously Presented) An adhesive sheet as claimed in claim 1 for a semiconductor connecting substrate which forms an adhesive layer (E) of a semiconductor integrated circuit board having at least, respectively, one wiring board layer (C) having an insulator layer and a conductor pattern, one layer without any conductor pattern formed (D) and one adhesive layer (E), wherein said adhesive sheet has a storage elastic modulus of 0.1 to 10000 MPa and a coefficient of linear expansion of  $0.1 \times 10^{-5} \sim 50 \times 10^{-5} \text{ } ^\circ\text{C}^{-1}$  in a temperature range of  $-50$  to  $150^\circ\text{C}$  after having been cured by heating.

6. (Previously Presented) An adhesive sheet for a semiconductor connecting substrate according to claim 5, which has

a breaking energy at 25°C of  $5 \times 10^5 \text{ Nm}^{-1}$  or more after having been cured by heating.

7. (Currently Amended) An adhesive sheet for a semiconductor connecting substrate having at least, respectively, one wiring board layer (C) being constituted by an insulator layer and a conductor pattern, one layer without any conductor pattern formed (D) and one adhesive layer (E), which forms an adhesive layer (E) of a semiconductor integrated circuit board, wherein said adhesive sheet contains at least, respectively, one thermoplastic resin (A) and one epoxy resin containing glycidyl groups (B) as essential components, and said epoxy resin (B) contains at least one epoxy resin (B) selected from the following (I), (II), and (III) as an essential component:

- (I) ~~Dicyclopentadiene~~ dicyclopentadiene skeleton-containing epoxy resins,
- (II) ~~Terpene~~ terpene skeleton-containing epoxy resins, and
- (III) ~~Biphenyl~~ biphenyl skeleton-containing epoxy resins.

8. (Previously Presented) An adhesive sheet for a semiconductor connecting substrate according to claim 7, wherein the thermoplastic resin (A) is a copolymer (a1) containing butadiene as an essential comonomer.

9. (Previously Presented) An adhesive sheet for a semiconductor connecting substrate according to claim 7, wherein the thermoplastic resin (A) contains a copolymer (a2) having butadiene as an essential comonomer and having carboxyl groups.

10. (Previously Presented) An adhesive sheet for a semiconductor connecting substrate according to claim 7, wherein the thermoplastic resin (A) is a polyamide resin (a3) containing a dicarboxylic acid with 36 carbon atoms as an essential component.

11. (Previously Presented) An adhesive sheet for a semiconductor connecting substrate according to claim 7, wherein the thermoplastic resin (A) is a polyamide resin (a3) containing a dicarboxylic acid with 36 carbon atoms as an essential component and is a polyamide resin (a4) having an amine value of more than 1 and less than 3.

12. (Previously Presented) An adhesive sheet for a semiconductor connecting substrate according to claim 7, which additionally contains a phenol resin (F).

13. (Previously Presented) A semiconductor connecting substrate comprising the adhesive sheet for a semiconductor connecting substrate stated in claim 7, wherein said semiconductor connecting substrate has at least, respectively, one wiring board layer being constituted by an insulator layer and a conductor pattern (C), one layer without any conductor pattern formed (D) and one adhesive layer (E).

14. (Previously Presented) A semiconductor device comprising the semiconductor connecting substrate of claim 13 and an integrated circuit.

15. (Previously Presented) The adhesive sheet for tape automated bonding (TAB) being constituted by a laminate as claimed in claim 1, said laminate having an adhesive layer and a protective film layer on a flexible organic insulating film, wherein said adhesive layer has a softening temperature of 60 to 110°C after having been cured, and has an insulation resistance dropping time of 50 hours or more after having been allowed to stand in an environment of 130°C and 85% RH with DC 100 V applied.

16. (Previously Presented) The adhesive sheet for TAB according to claim 15, wherein the adhesive layer has a breaking

energy of  $5 \times 10^5 \text{ Nm}^{-1}$  or more at  $25^\circ\text{C}$  after having been cured by heating.

17. (Currently Amended) An adhesive-backed tape for tape automated bonding (TAB) being constituted by a laminate having an adhesive layer and a protective film layer on a ~~flexible organic insulating film~~ substrate, wherein said adhesive layer contains a thermoplastic resin (A) and an epoxy resin containing glycidyl groups (B) and said epoxy resin (B) contains at least one epoxy resin (B) selected from the following (I), (II), and (III) as an essential component:

- (I) ~~Dicyclopentadiene~~ dicyclopentadiene skeleton-containing epoxy resins,
  - (II) ~~Terpene~~ terpene skeleton-containing epoxy resins, and
  - (III) ~~Biphenyl~~ biphenyl skeleton-containing epoxy resins,
- wherein the flexible substrate comprises a flexible insulating film made of a polyimide, polyester, polyphenylene, sulfide, polyether sulfane, polyether ether ketone, aramid, polycarbonate or polyarylate.

18. (Previously Presented) An adhesive-backed tape for TAB according to claim 17, wherein the thermoplastic resin (A) is a

polyamide resin (a) containing a dicarboxylic acid with 36 carbon atoms as an essential component.

19. (Previously Presented) An adhesive-backed tape for TAB according to claim 17, wherein the thermoplastic resin (A) is a polyamide resin (a) containing a dicarboxylic acid with 36 carbon atoms as an essential component and is a polyamide resin (a') having an amine value of 1 or more and 3 or less.

20. (Previously Presented) An adhesive-backed tape for TAB according to claim 17, wherein the adhesive layer additionally contains a phenol resin (F).

21. (Previously Presented)) An adhesive-backed tape for TAB according to claim 20, wherein the phenol resin (F) contains more than 35 wt% and less than 60 wt% of a resol phenol resin based on the weight of the adhesive layer.

22. (Previously Presented) An adhesive-backed tape for TAB according to claim 21, wherein the resol phenol resin contains a bifunctional phenol derivative (f1) with at least one alkyl group with 5 to 12 carbon atoms and a trifunctional or higher-functional

phenol derivative (f2) as essential components, with the condition that  $f1/(f1 + f2) = 0.2 \sim 0.8$ .

23. (Previously Presented) The adhesive sheet for TAB according to claim 15, wherein the organic insulating film is a polyimide film.

24. Cancelled

25. (Previously Presented) A semiconductor device comprising the adhesive-backed tape for TAB of claim 15 and an integrated circuit.

26. (Previously Presented) The adhesive sheet for wire bonding connection being constituted by a laminate as claimed in claim 1, said laminate having an adhesive and a protective film layer on a flexible organic insulating film, wherein said adhesive layer has a softening temperature of 120 to 200°C after having been cured, a storage elastic modulus of 20 to 100 MPa at 150°C and an insulation resistance dropping time of 50 hours or more after having been allowed to stand in an environment of 130°C and 85% RH with DC 100 V applied.



27. (Previously Presented) The adhesive sheet for wire bonding connection according to claim 26, wherein the adhesive layer contains a thermoplastic resin (A) and an epoxy resin (B), and the film made of 1/1 mixture consisting of said thermoplastic resin (A) and said epoxy resin (B) is 8 to 40 in haze.

28. Cancelled

29. (Currently Amended) The adhesive sheet for wire bonding connection according to claim ~~28~~ 26, wherein the epoxy resin content is 10 wt% to 40 wt% based on the weight of the adhesive layer.

30. (Currently Amended) The adhesive sheet for wire bonding connection according to claim ~~28~~ 26, wherein the thermoplastic resin (A) is a polyamide resin (a) containing a dicarboxylic acid with 36 carbon atoms as an essential component.

31. (Currently Amended) The adhesive sheet for wire bonding connection according to claim ~~28~~ 26, wherein the thermoplastic resin (A) consists of a polyamide resin (a) containing a dicarboxylic acid with 36 carbon atoms as an essential component an

a polyamide resin (a') having an amide value of 1 or more and 3 or less.

32. (Currently Amended) The adhesive sheet for wire bonding connection according to claim ~~28~~ 26, wherein the adhesive layer contains additionally a phenol resin (F).

33. (Previously Presented) The adhesive sheet for wire bonding connection according to claim 32, wherein the phenol resin (F) contains a resol type phenol resin of more than 35 wt% and less than 60 wt% based on the weight of the adhesive layer.

34. (Previously Presented) The adhesive sheet for wire bonding connection according to claim 26, wherein the organic insulating film is a polyimide film.

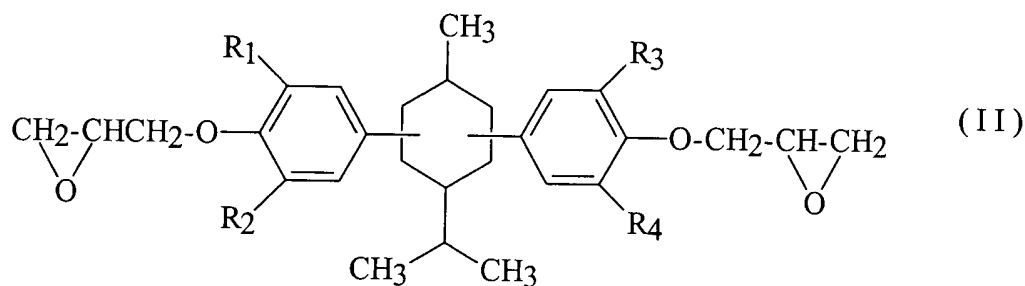
35. Cancelled

36. (Previously Presented) A semiconductor device comprising the adhesive-backed tape for wire bonding of claim 26 and an integrated circuit.

37. Cancelled

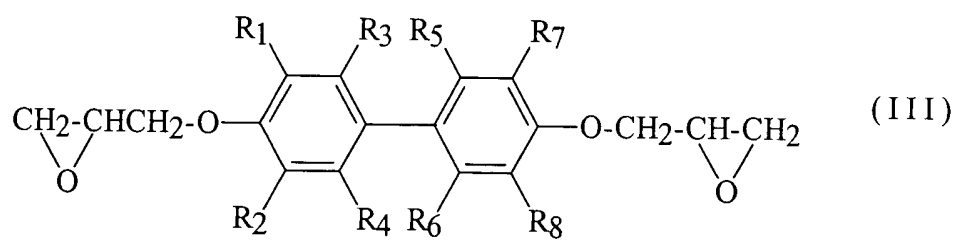
38. (Previously Presented) A semiconductor device comprising the adhesive sheet of claim 1 and an integrated circuit.

39. (Previously Presented) An adhesive sheet for a semiconductor connecting substrate according to claim 1, wherein the terpene skeleton-containing epoxy resins (b2) are represented by the following general formula (II):



wherein  $R_1$  to  $R_4$  stand for a hydrogen atom, lower alkyl group with 1 to 4 carbon atoms, or halogen atom.

40. (Previously Presented) An adhesive sheet for a semiconductor connecting substrate according to claim 1, wherein the biphenyl skeleton-containing epoxy resins (b3) are represented by the following general formula (III):



wherein R<sub>1</sub> to R<sub>8</sub> stand for, respectively independently, a hydrogen atom, lower alkyl group with 1 to 4 carbon atoms or halogen atom.